

IN THE CLAIMS:

1-21 (cancelled).

22. (new) A method for operating a mobile station to receive data from a base station across a wireless link of a cellular wireless communication system, the method comprising:

5 performing physical layer operations on the mobile station by:

receiving a physical layer frame from the base station across the wireless link;

determining whether the physical layer frame is error free;

when the physical layer frame is error free, sending an acknowledgment to the base station indicating a successful receipt, extracting a good packet data unit from the 10 physical layer frame, and passing the good packet data unit to a upper layer operating on the mobile station; and

when the physical layer frame is not error free, initiating physical layer Automatic Retransmission reQuest (ARQ) operations of the mobile station; and

15 after a predetermined number of physical layer ARQ operation attempts, extracting a bad packet data unit from a corresponding physical layer frame and passing the bad packet data unit to the upper layer operating on the mobile station;

performing upper layer operations on the mobile station by:

operating upon a packet data unit received by the upper layer operating on the mobile station, including:

20 when the packet data unit is a good packet data unit, operating upon the good packet data unit; and

when the packet data unit is a bad packet data unit, initiating upper layer ARQ operations of the mobile station in an attempt to recover a corresponding

good packet data unit; and

monitoring the status of received packet data units, including:

detecting that a packet data unit is lost;

delaying upper layer ARQ operations of the mobile station for the lost
5 packet data unit for a delay period corresponding to a duration of physical
layer ARQ operations of the mobile station for the lost packet data unit; and
after the delay period has expired, initiating upper layer ARQ operations
of the mobile station for the lost packet data unit.

10 23. (new) The method of claim 22, wherein the delay period of the upper layer ARQ
operations of the mobile station corresponds to N physical layer ARQ attempts of the mobile
station to successfully receive a physical layer frame containing the lost packet data unit, and
wherein N is an integer.

15 24. (new) The method of claim 22, further comprising the upper layer operating on
the mobile station detecting that a packet data unit is lost by comparing the sequence number of a
received packet data unit to the sequence number of an expected packet data unit.

20 25. (new) The method of claim 22, wherein the upper layer operating on the mobile
station comprises a link layer.

26. (new) The method of claim 22, further comprising operating substantially in
accordance with the 1xEV-DO interface standard.

27. (new) A method for operating a base station to receive data from a mobile station across a wireless link of a cellular wireless communication system, the method comprising:

performing physical layer operations on the base station by:

5 receiving a physical layer frame from the mobile station across the wireless link;
determining whether the physical layer frame is error free;
when the physical layer frame is error free, sending an acknowledgment to the mobile station indicating a successful receipt, extracting a good packet data unit from the physical layer frame, and passing the good packet data unit to a upper layer operating on
10 the base station; and

when the physical layer frame is not error free, initiating base station physical layer Automatic Retransmission reQuest (ARQ) operations; and

15 after a predetermined number of physical layer ARQ operation attempts, extracting a bad packet data unit from a corresponding physical layer frame and passing the bad packet data unit to the upper layer operating on the base station;

performing upper layer operations on the base station by:

operating upon a packet data unit received by the upper layer operating on the base station, including:

20 when the packet data unit is a good packet data unit, operating upon the good packet data unit; and

when the packet data unit is a bad packet data unit, initiating upper layer ARQ operations of the base station in an attempt to recover a corresponding good packet data unit; and

monitoring the status of received packet data units, including:

detecting that a packet data unit is lost;
delaying upper layer ARQ operations of the base station for the lost packet data unit for a delay period corresponding to a duration of physical layer ARQ operations of the base station for the lost packet data unit; and
5 after the delay period has expired, initiating upper layer ARQ operations of the base station for the lost packet data unit.

28. (new) The method of claim 27, wherein the delay period of the upper layer ARQ operations of the base station corresponds to N physical layer ARQ attempts of the base station
10 to successfully receive a physical layer frame containing the lost packet data unit, and wherein N is an integer.

29. (new) The method of claim 27, further comprising the upper layer operating on the base station detecting that a packet data unit is lost by comparing the sequence number of a
15 received packet data unit to the sequence number of an expected packet data unit.

30. (new) The method of claim 27, wherein the upper layer operating on the base station comprises a link layer.

20 31. (new) The method of claim 27, further comprising operating substantially in accordance with the 1xEV-DO interface standard.

32. (new) A mobile station that operates to receive data from a base station across a wireless link of a cellular wireless communication system comprising:

an antenna;

a radio frequency unit communicatively coupled to the antenna; and

5 at least one digital processor communicatively coupled to the radio frequency unit and operable to cause the mobile station to:

perform physical layer operations that include physical layer Automatic Retransmission reQuest (ARQ) operations;

perform upper layer operations that include upper layer ARQ operations; and

10 coordinate the physical layer ARQ operations with the upper layer ARQ operations by delaying upper layer ARQ operations for a lost packet data unit to allow the physical layer ARQ operations of the mobile station to recover a physical layer frame carrying the lost packet data unit.

33. (new) The mobile station of claim 32, wherein the mobile station is operable to:
in performing the physical layer operations:

receive a physical layer frame from the base station across the wireless link;

determine whether the physical layer frame is error free;

5 when the physical layer frame is error free, send an acknowledgment to the base station indicating a successful receipt, extract a good packet data unit from the physical layer frame, and pass the good packet data unit to the upper layer operating on the mobile station;

10 when the physical layer frame is not error free, initiate the physical layer ARQ operations; and

after a predetermined number of physical layer ARQ operation attempts, extract a bad packet data unit from a corresponding physical layer frame and pass the bad packet data unit to the upper layer operating on the mobile station; and

in performing the upper layer operations:

15 operate upon a packet data unit received by the upper layer operating on the mobile station, including:

when the packet data unit is a good packet data unit, operate upon the good packet data unit; and

20 when the packet data unit is a bad packet data unit, initiate upper layer ARQ operations of the mobile station in an attempt to recover a corresponding good packet data unit; and

monitor the status of received packet data units to:

detect that a packet data unit is lost;

delay upper layer ARQ operations for the lost packet data unit for a delay

period corresponding to a duration of physical layer ARQ operations for the lost packet data unit; and

after the delay period has expired, initiate upper layer ARQ operations for the lost packet data unit.

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34. (new) The mobile station of claim 33, wherein the delay period of the upper layer ARQ operations of the mobile station corresponds to N physical layer ARQ attempts of the mobile station to successfully receive a physical layer frame containing the lost packet data unit, and wherein N is an integer.

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35. (new) The mobile station of claim 33, wherein the mobile station is operable to detect that a packet data unit is lost by comparing the sequence number of a received packet data unit to the sequence number of an expected packet data unit.

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36. (new) The mobile station of claim 32, wherein the upper layer operating on the mobile station comprises a link layer.

37. (new) The mobile station of claim 32, wherein the mobile station operates substantially in accordance with the 1xEV-DO interface standard.

38. (new) A base station that operates to receive data from a mobile station across a wireless link of a cellular wireless communication system comprising:

an antenna;

a radio frequency unit communicatively coupled to the antenna; and

5 at least one digital processor communicatively coupled to the radio frequency unit and

operative to cause the base station to:

perform physical layer operations that include physical layer Automatic Retransmission reQuest (ARQ) operations;

perform upper layer operations that include upper layer ARQ operations; and

10 coordinate the physical layer ARQ operations with the upper layer ARQ operations by delaying upper layer ARQ operations for a lost packet data unit to allow the physical layer ARQ operations of the base station to recover a physical layer frame carrying the lost packet data unit.

39. (new) The base station of claim 38, wherein the base station is operable to:

in performing the physical layer operations:

receive a physical layer frame from the mobile station across the wireless link;

determine whether the physical layer frame is error free;

5 when the physical layer frame is error free, send an acknowledgment to the mobile station indicating a successful receipt, extract a good packet data unit from the physical layer frame, and pass the good packet data unit to a upper layer operating on the base station;

when the physical layer frame is not error free, initiate the physical layer ARQ 10 operations; and

after a predetermined number of physical layer ARQ operation attempts, extract a bad packet data unit from a corresponding physical layer frame and pass the bad packet data unit to the upper layer operating on the base station; and

in performing the upper layer operations:

15 operate upon a packet data unit received by the upper layer operating on the base station, including:

when the packet data unit is a good packet data unit, operate upon the good packet data unit; and

when the packet data unit is a bad packet data unit, initiate upper layer 20 ARQ operations of the base station in an attempt to recover a corresponding good packet data unit; and

monitor the status of received packet data units to:

detect that a packet data unit is lost;

delay upper layer ARQ operations for the lost packet data unit for a delay

period corresponding to a duration of physical layer ARQ operations for the lost packet data unit; and

after the delay period has expired, initiate upper layer ARQ operations for the lost packet data unit.

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40. (new) The base station of claim 39, wherein the delay period of the upper layer ARQ operations of the base station corresponds to N physical layer ARQ attempts of the base station to successfully receive a physical layer frame containing the lost packet data unit, and wherein N is an integer.

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41. (new) The base station of claim 39, wherein the base station is operable to detect that a packet data unit is lost by comparing the sequence number of a received packet data unit to the sequence number of an expected packet data unit.

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42. (new) The base station of claim 38, wherein the base station operates substantially in accordance with the 1xEV-DO interface standard.